

QUALITY ASSURANCE SAMPLING PLAN

FOR

WEST FERTILIZER EXPLOSION 1471 JERRY MASHEK DRIVE WEST, MCLENNAN COUNTY, TEXAS

Prepared For

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EPA OSC: Mark Hayes
START-3 PTL: Sam Cheek

Prepared by

Weston Solutions, Inc.
Robert Beck, VP, P.E., Program Manager
70 NE Loop 410, Suite 600
San Antonio, Texas 78216
(210) 308-4300

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1. INTRODUCTION

Weston Solutions, Inc. (WESTON®), the Superfund Technical Assessment and Response Team (START-3) contractor, has been tasked by the U.S. Environmental Protection Agency (EPA) Region 6 Prevention and Response Branch (PRB) under Contract Number EP-W-06-042 to conduct soil sampling operations at the West Fertilizer Explosion emergency response. A Proposed Soil Sampling Locations Map is provided as Figure 1-1. START-3 has prepared this Quality Assurance Sampling Plan (QASP) to describe the technical scope of work to be completed as part of this Emergency Response. In the event that elevated levels of pesticides are found, additional assessment may be conducted under this scope of work or under an assessment scope of work.

1.1 PROJECT OBJECTIVES

START-3 is providing technical assistance to EPA Region 6 for response to the West Fertilizer Explosion emergency response. START-3 will conduct soil sampling investigations to determine if pesticides stored on the fertilizer facility migrated into public areas. The objective of the sampling will be to assess the potential impact of the pesticides on surrounding public property to determine if removal actions are necessary.

The objectives of the sampling will be achieved by comparing the analytical results of the sampling event from the impacted area against both risk-based standards and area background concentrations. START-3 will utilize clean, one time use plastic scoops to collect the soil and analyze for the presence of pesticides.

1.2 PROJECT TEAM

The Project Team will consist of START-3 personnel to perform the sampling activities. The EPA On-Scene Coordinator (EPA-OSC), will determine the number of and location of all samples to be collected. START-3 will collect the samples as necessary, record the activities at each sample location in the field logbook, and verify sample documentation. Sample documentation and preparation is also the responsibility of the START-3 Data Manager.

1.3 QASP FORMAT

This QASP has been organized in a format that is intended to facilitate and effectively meet the objective of the RA(?). The QASP is organized in the following sections:

- Section 1 – Introduction
- Section 2 – Site Background
- Section 3 – Sampling Approach and Procedures
- Section 4 – Quality Assurance

Tables are included at the end of each representative section. All figures are provided as separate Portable Document Format (PDF) files. Appendices are attached with the following information:

Appendix A Site-Specific Data Quality Objectives

Appendix B WESTON Standard Operating Procedures

Appendix C Analyte List for Pesticides by SW-846 Method 8141 and Herbicides by SW-846 Method 8151 with Reporting Units

2. SITE BACKGROUND

Information about the site location and description, site history and features, and a summary of previous investigations is included in the following subsections.

2.1 SITE LOCATION AND DESCRIPTION

West Fertilizer is located in between a residential and rural area at 1471 Jerry Mashek Drive, West, McLennan County, Texas. The site encompasses approximately 11 acres. The site is located at latitude 31.81565° North and longitude 97.08805° West. A Site Location Map is provided as Figure 1-1 and a Site Area Map is provided as Figure 1-2.

The site is a former fertilizer formulation facility that had a catastrophic explosion and fire on 17 April 2013. The facility was destroyed in the explosion and fire. Based upon Tier II reports from the facility and information from inspecting agencies, including the Texas Department of Agriculture, the following pesticides in addition to the fertilizers, anhydrous ammonia and ammonium nitrate, are believed to have been on-site at the time of the fire and explosion. Those pesticides include:

- Atrazine™ (herbicide)
2-chloro-4-ethylamino-6-isopropylamino-s-triazine, CASRN 1912-24-9
- Grazon™ (herbicide)
- Picloram (4-amino-3,5,6-trichloropyridine-2-carboxylic acid, CASRN 1918-02-1)
- 2,4-D (2,4-Dichlorophenoxyacetic acid, CASRN 94-75-7)
- Roundup® (herbicide)
- Glyphosate, isopropylamine salt, CASRN 38641-94-0 and CASRN 1071-83-6
- Potential fungicide:
- Propiconazole [(±)-1-[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-ylmethyl]-1H-1,2,4-triazole, CASRN 60207-90-1]
- Other potential fungicides:
 - Azoxystrobin
 - Cyproconazole
 - Fluoxastrobin
 - Flutriafol
 - Metconazole
 - Pyraclostrobin
 - Tebuconazole

- Tetraconazole
- Trifloxystrobin

2.2 SITE CONCERNS

The contaminants of concern for the West Fertilizer Explosion Site are, but not limited to, pesticides that were stored on-site at the time of the fire and explosion. Public exposure to these compounds in concentrations above those that would be encountered under the recommended usage of these compounds could result in adverse health effects.

3. SAMPLING APPROACH AND PROCEDURES

Samples collected by START-3 will be used to evaluate the pesticides within the soils.

3.1 OVERVIEW OF SAMPLING ACTIVITIES

START-3 will collect soil samples from publicly accessible areas. Samples will be collected from 0-1 inches below ground surface (bgs) at sample points based upon access and site conditions, and as determined by EPA. START-3 will use SCRIBE software to manage sample data.

3.1.1 Data Quality Objectives

The objectives of the sampling activities described in this QASP are to determine if there has been a release of site-related pesticides into the surrounding environment at levels that may pose a risk to human health. To accomplish this, the following data quality objective (DQO) has been established and is included in Appendix A:

- Determine if there is a release of site-related contamination into the surrounding environment.

The DQO was developed using the seven-step process set forth in the *EPA Guidance for Quality Assurance Project Plans: EPA QA/G-5*.

The analytical results of the Soil Sampling will be evaluated against Soil screening levels for the targeted pesticides are the Texas Commission on Environmental Quality (TCEQ) Protective

Concentration Limit (PCL) for residential soils, EPA Regional Screening Levels (RSLs) if PCL is not available, and local soil background concentrations.

Chemical	CASRN	Screening Level (mg/kg)	Basis (PCL or RSL)
Atrazine	1912-24-9	21	PCL
2,4-D	94-75-7	73	PCL
Glyphosate	1071-83-6	6700	PCL
Picloram	1918-02-1	4700	PCL
Propiconazole	60207-90-1	790	RSL

3.1.2 Health and Safety Plan Implementation

The START-3 field activities will be conducted in accordance with the site-specific health and safety plan (HASP). The Field Safety Officer (FSO) will be responsible for implementation of the HASP during field investigation activities.

3.2 SAMPLING/MONITORING APPROACH

Samples will be collected in general accordance with the EPA Emergency Response Team (ERT) and WESTON Standard Operating Procedures (SOPs) for soil sampling following WESTON SOP 1002.04. The specific sampling procedures are described below.

3.2.1 Soil Sampling

As part of this assessment, START-3 will collect soil samples at 0-1 inches bgs to document concentrations of site related contaminants in the environment surrounding the facility. Samples will be collected using pre-cleaned, one time use plastic scoops to prevent cross-contamination.

Soil samples will be submitted to XXX Laboratory and analyzed for Herbicides following EPA SW846 Method 8141 and Pesticides following SW846 Method 8151.

3.2.2 Investigation-Derived Waste (IDW)

It is anticipated that minimal amounts of IDW will be generated during this activity and will be disposed of as site related trash. If additional sampling and investigation are required, additional steps to mitigate IDW will be implemented.

3.2.3 Sampling and Sample Handling Procedures

Samples will be collected using equipment and procedures appropriate to the matrix, parameters, and sampling objectives. The volume of the sample collected must be sufficient to perform the laboratory analysis requested. Samples must be stored in the proper types of containers and preserved in a manner appropriate to the analysis to be performed.

Clean, decontaminated sampling equipment and sample containers will be maintained in a clean, segregated area. Samples will be collected with clean decontaminated equipment following WESTON SOP 1201.01. Samples collected for laboratory analysis will be placed directly into pre-cleaned, unused glass or plastic containers. Sampling personnel will change gloves between each sample collection/handling. Samples will be assembled and catalogued prior to shipping to the designated laboratory (following WESTON SOP 1101.1 and 1102.01).

3.2.4 Field Quality Control Samples

START-3 will collect field duplicate samples as needed during the sampling activities. QA/QC samples will be collected according to the following:

- Blind field duplicate samples will be collected during sample activities for locations selected by the START-3. The data obtained from these samples will be used to ensure the quality assurance of the sampling procedures and laboratory analytical data by following an evaluation of reproducibility of results. Efforts will be made to collect duplicate samples from an area collocated from the original sample location where there is visual evidence of contamination or where contamination is suspected. It is anticipated that two duplicate soil samples for pesticides and herbicides will be collected.
- Temperature blanks will be prepared in the field and will consist of one 40-milliliter glass sample container with Teflon-lined septum cap. The temperature blank will be packaged along with the field samples in the shipping cooler and will represent the temperature of the incoming cooler upon receipt at the laboratory. Use of these samples within a shipping container enables the laboratory to assess the temperature of the shipment without disturbing any of the field samples.

3.3 SAMPLE MANAGEMENT

Specific nomenclature that will be used by START-3 will provide a consistent means of facilitating the sampling and overall data management for the project (WESTON SOP 0110.04).

The START-3 Assessment Manager must approve any deviations from the sample nomenclature proposed below.

As stated in WESTON SOP 0110.04, sample nomenclature will follow a general format regardless of the type or location of the sample collected. The general nomenclature consists of the following components:

- Geographic location (e.g., location within a school or park).
- Collection type (composite, grab, etc.).
- QA/QC type (normal, duplicate, etc.).
- Sequence - An additional parameter used to further differentiate samples.

Sample data management will be completed utilizing SCRIBE including Chain-of-Custody (COC) and sample documentation needs.

3.4 DECONTAMINATION

While, no decontamination is anticipated to be necessary, any nondisposable sampling equipment (metal trowels, stainless steel bowls, etc.) used during the sample collection process will be thoroughly pre-cleaned before initial use, between use, and at the end of the field investigation. Equipment decontamination will be completed in the following steps:

- High-pressure water spray or brush, if needed, to remove soil/sediment from the equipment.
- Nonphosphate detergent and potable water wash to clean the equipment.
- Final potable water rinse.
- Equipment air-dried.

Personnel decontamination procedures will be described in the site-specific HASP that will be prepared by START-3 prior to implementation of activities at the site.

3.5 SAMPLE PRESERVATION, CONTAINERS, AND HOLD TIMES

Once collected, samples will be stored on ice in coolers on-site until shipped for laboratory analysis. The samples will be shipped via common carrier to the laboratory or driven by START-3 members.

START-3 will receive analytical results based on discussions with the EPA OSC. This turnaround time (TAT) is initiated when the samples are received at the laboratory and continues until the analytical results are made available to START-3 either verbally or by providing facsimile or email copies of the results for review. Samples that have been analyzed will be disposed by the designated laboratory in accordance with the laboratory SOPs.

Table 3-1
Requirements for Containers, Preservation Techniques, Sample Volumes, and Holding Times

Name	Analytical Methods	Container	Preservation	Minimum Sample Volume or Weight	Maximum Holding Time
Herbicides	SW846 8141	Glass,	4°C	8 oz	14 days
Pesticides	SW846 8151	Glass	4°C	8oz	14 days

4. QUALITY ASSURANCE

Quality Assurance (QA) will be conducted in accordance with the WESTON Corporate Quality Management Manual, dated March 2004; the WESTON START-3 Quality Management Plan, dated August 2007; and EPA Guidance for Performing Site Inspections under CERCLA. Following receipt of the TDD from EPA, a Quality Control (QC) officer will be assigned and will monitor work conducted throughout the entire project including reviewing interim report deliverables and field audits. START-3 will be responsible for QA/QC of the field investigation activities. The designated laboratory utilized during the investigation will be responsible for QA/QC related to the analytical work. START-3 will also collect samples to verify that laboratory QA/QC is consistent with the required standards and to validate the laboratory data received.

4.1 SAMPLE CHAIN-OF-CUSTODY PROCEDURES

START-3 will utilize SCRIBE for all sample documentation and chain-of-custody COC preparation needs. Because of the evidentiary nature of sample collection, the possession of samples must be traceable from the time the samples are collected until they are introduced as evidence in legal proceedings. After sample collection and identification, the samples will be maintained under the COC procedures. Personnel required to package and ship coolers containing potentially hazardous material will be trained accordingly.

The COC procedures are documented in WESTON SOP 1101.01, and will be made available to personnel involved with the sampling. A typical COC record included in WESTON SOP 1101.01 will be completed each time a sample or group of samples is prepared for shipment to the laboratory. The record will repeat the information on each of the sample labels and will serve as documentation of handling during shipment. A copy of this record will remain with the shipped samples at all times, and the member of the sampling team who originally relinquished the samples will retain another copy. START-3 personnel will complete a COC form for all samples sent to a START-3-designated off-site laboratory.

Samples relinquished to the participating laboratories will be subject to the following procedures for transfer of custody and shipment:

- The COC record will accompany samples. When transferring possession of samples, the individuals relinquishing and receiving the samples will sign, date, and note the time of the sample transfer on the record. This custody record documents transfer of sample custody from the sampler to another person or to the laboratory.
- Samples will be properly packed for shipment and dispatched to the appropriate laboratory for analysis with separate, signed custody records enclosed in each sample box or cooler. Sample shipping containers will be custody-sealed for shipment to the laboratory. The preferred procedure includes use of a custody seal wrapped across filament tape that is wrapped around the package at least twice. The custody seal will then be folded over and stuck to the seal to ensure that the only access to the package is by cutting the filament tape or breaking the seal to unwrap the tape.
- If sent by common carrier, a bill of lading or airbill will be used. Bill of lading and airbill receipts will be retained in the project file as part of the permanent documentation of sample shipping and transfer.

WESTON SOPs 1101.01 and 1102.01, provided in Appendix B, describe these procedures in more detail.

4.2 PROJECT DOCUMENTATION

Documents will be completed legibly and in ink and by entry into field logbooks, Response Manager, or SCRIBE. Response Manager is the Enterprise Data Collection System designed to provide near real-time access to non-analytical data normally collected in logbooks. Response Manager provides a standard data collection interface for modules of data normally collected by START-3 field personnel while on-site. These modules fall into two basic categories for Response and Removal. The modules include Emergency Response, Reconnaissance, Facility Assessment, Shipping, Containers, Materials, Calls, HHW, and General/Site Specific data. The system provides users with a standard template for laptop/desktop/tablet PCs that will synchronize to the secure web interface using merge replication technology to provide access to field collected data via on the RRC-EDMS EPA Web Hub.

Response Manager also includes an Analytical Module that is designed to give SCRIBE users the ability to synchronize the SCRIBE field data to the RRC-EDMS Web Hub. This allows analytical data managers and data validators access to data to perform reviews from anywhere

with an Internet connection. The Analytical Module is designed to take the analytical data entered into EPA SCRIBE software and make it available for multiple users to access on one site. START-3 personnel will utilize SCRIBE for all data entry on-site and will upload to the Response Manager Analytical Module.

Field Documentation

The following field documentation will be maintained as described below.

Field Logbook

The field logbook is a descriptive notebook detailing site activities and observations so that an accurate, factual account of field procedures may be reconstructed. All entries will be signed by the individuals making them. Entries should include, at a minimum, the following:

- Site name and project number.
- Names of personnel on-site.
- Dates and times of all entries.
- Description of all site activities, including site entry and exit times.
- Noteworthy events and discussions.
- Weather conditions.
- Site observations.
- Identification and description of samples and locations.
- Subcontractor information and names of on-site personnel.
- Dates and times of sample collections and chain-of-custody information.
- Records of photographs.
- Site sketches.
- Calibration results.

Sample Labels

Sample labels will be securely affixed to the sample container. The labels will clearly identify the particular sample and include the following information:

- Site name and project number.
- Date and time the sample was collected.
- Sample preservation method.
- Analysis requested.
- Sampling location.

Chain-of-Custody Record

A chain-of-custody will be maintained from the time of sample collection until final deposition. Every transfer of custody will be noted and signed for and a copy of the record will be kept by each individual who has signed it.

Custody Seal

Custody seals demonstrate that a sample container has not been tampered with or opened. The individual who has custody of the samples will sign and date the seal and affix it to the container in such a manner that it cannot be opened without breaking the seal.

Photographic Documentation

START-3 will take photographs to document site conditions and activities as site work progresses. Initial conditions should be well documented by photographing features that define the site-related contamination or special working conditions. Representative photographs should be taken of each type of site activity. The photographs should show typical operations and operating conditions as well as special situations and conditions that may arise during site activities. Site final conditions should also be documented as a record of how the site appears at completion of the work.

Photographs should be taken with either a film camera or digital camera capable of recording the date on the image. Each photograph will be recorded in the logbook and within Response Manager with the location of the photographer, direction the photograph was taken, the subject of the photograph, and its significance (i.e., why the picture was taken). Where appropriate, the photograph location, direction, and subject will also be shown on a site sketch and recorded within Response Manager.

Report Preparation

At the completion of the project, START-3 will review and validate laboratory data and prepare a draft report of field activities and analytical results for EPA OSC review. Draft deliverable documents will be uploaded to the EPA TeamLink website for EPA OSC review and comment.

Response Manager

START-3 will use the Response Manager module located on the EPA Web Hub, <https://solutions.westonproject.net/epawebhub/>, to compile and organize the data collected from project activities. The information to be included encompasses some or all of the following depending on the specific project needs:

- General Module – site-specific data including location and type of site. It also includes an area for key site locations including geo-spatial data associated with the key site locations.
- Emergency Response Module – includes the following sub-modules: Basic Info, HAZMAT, Release, Time Line Log, Incident Zones, Photos, Sensitive Receptors, Evacuations, Source, Cause, and Weather.
- Reconnaissance Module – provides standard templates with the flexibility of adding any additional questions of values to the drop-down lists for targeted reconnaissance efforts. Typically the data in this module is associated with ESF-10 deployments and the clean-up of orphaned containers and hazardous debris, but the module can be utilized for any or all reconnaissance activities.
- Facility Assessment Module – provides standard templates with the flexibility of adding any additional questions of values to the drop-down lists for assessments of structures. Typically utilized for EPA regulated program facilities during an ESF-10 deployment of resources. This module can be utilized to track the assessment of any facilities including multiple assessments of the fixed facilities.
- Shipping Module – provides standard templates for creating a cradle-to-grave record of all waste shipments from the site until they are recycled or destroyed. This includes the ability to capture manifests and manifest line items and upload photos/original documents to support the records.
- Container Module – provides standard templates for cataloguing containers including HAZCAT and Layer information in each container. The module also allows for tracking which containers are bulked.
- Properties Module – provides standard templates with the flexibility of adding any additional questions of values to the drop-down lists for collection of property data including access agreements and assessments of the property and current status of property regarding the site removal action.
- Materials Module – provides standard templates for tracking materials that are brought on-site or that are removed from the site.
- Daily Reports – provides standard templates for tracking daily site activities, daily site personnel, and daily site notes for reporting back to the EPA OSC in a POLREP or SITREP.

- HHW Module – provides standard templates with the flexibility of adding any additional questions of values to the drop-down lists for tracking the amount of HHW collected at individual collection stations by HHW type.
- Data Files – data files can be uploaded in the photo module section and be associated with individual records or with the site in general. The meta-data associated with that data file can be filled in using the photo log fields.

The data stored in the Response Manager database can be viewed and edited by any individual with access rights to those functions. At any time deemed necessary, POLREP and/or SITREPs can be generated by exporting the data out of Response Manager into Microsoft Excel/Word. The database is stored on a secure server and backed up regularly.